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I&T 100 YEARS OF LEADERSHIP 1886-1986

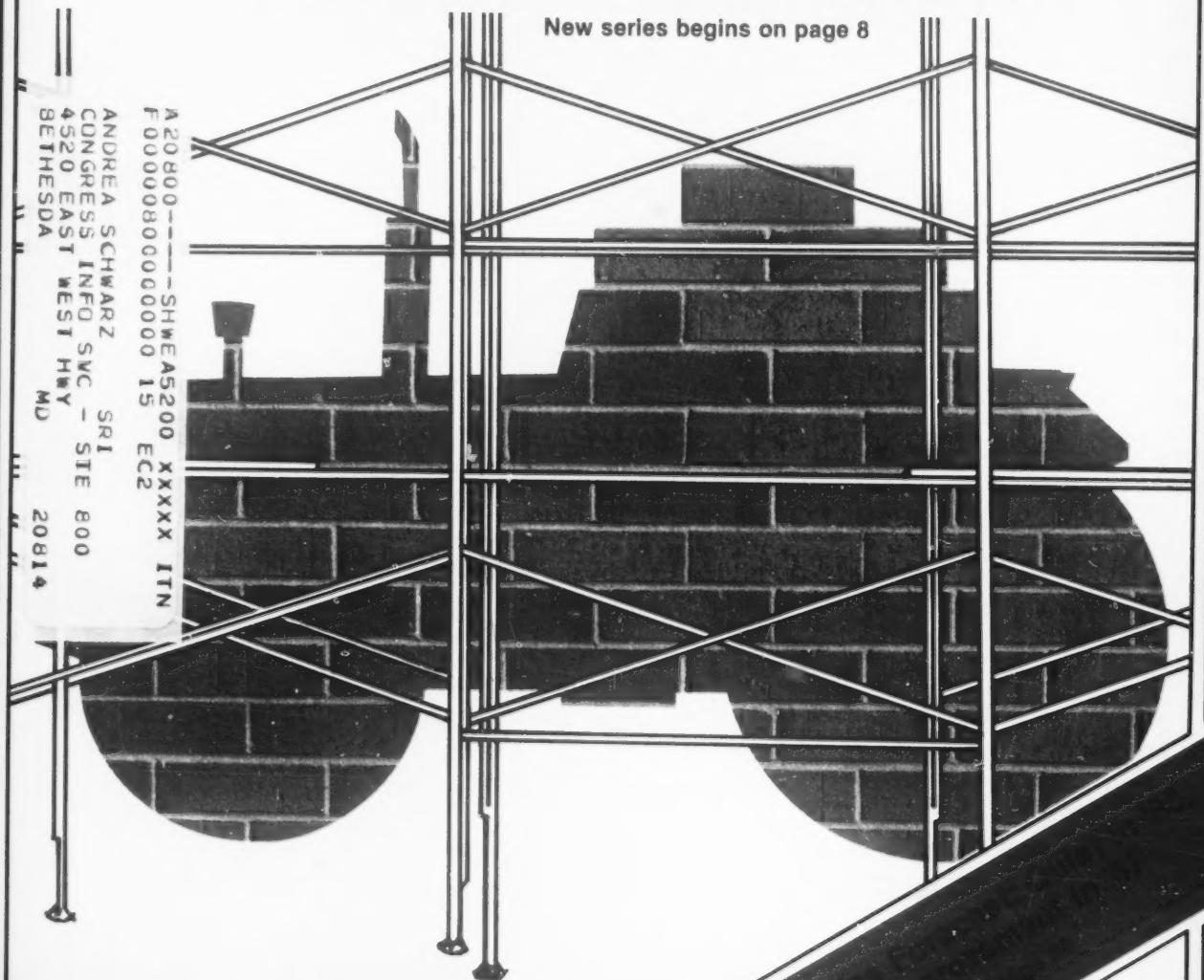
Industrial Equipment

The business magazine of the farm and industrial equipment industry FEBRUARY 1986

U.K.'s Smithfield: Awaiting the Japanese page 16

Reconstructing the industry

New series begins on page 8



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I&T 100 YEARS OF LEADERSHIP 1886-1986

Implement & Tractor

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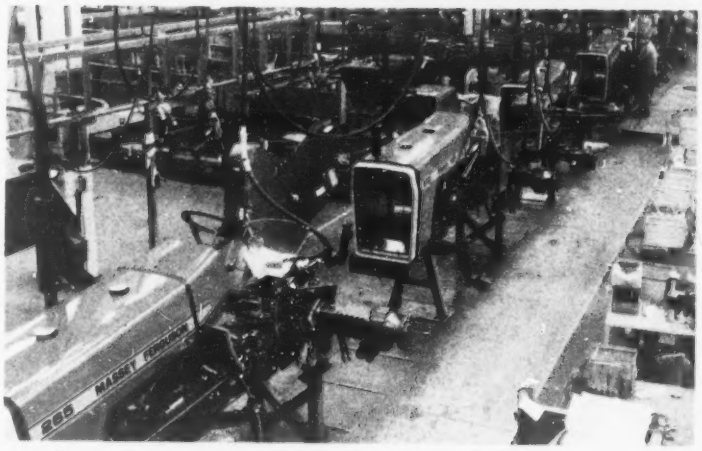

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8: How Massey Changed Itself. Part 1 of a series on Reconstructing the Industry looks at the extreme measures Massey-Ferguson took to survive, even before the big market crunch. What has emerged is an M-F that is highly flexible and apparently headed for sustained profitability.

16: British Await New Japanese Competition. A report from the Smithfield machinery show finds Iseki and Kubota gearing up for the U.K. market, despite sluggish ag business in recent months.

20: Ceramic Materials for Farm Equipment. The search for greater wear resistance than iron and steel in ground-engaging applications has led, in Britain, to some commercial breakthroughs for ceramics.

24: Forecast: Quiet 1986, Better in 1987. The FIEI again gathers projections for the upcoming market year and the general outlook is for more of the same.

26: Farm Equipment Shipments. At last available, having missed the traditional November statistical issue last year, are the figures for quantities of farm machines shipped 1980-1984, along with dollar values of major sales categories.

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Closing Out 1985 Retail Sales: Thank Heaven for Little Tractors

The last 1985 flash report from the Farm & Industrial Equipment Institute shows only one product category in U.S. retail sales with an increase and another finishing about even with 1984. All other products showed unit sales declines of 14 to 30 per cent.

Unit Retail Sales

	December			January-December		
	1985	1984	Pct. Change	1985	1984	Pct. Change
Farm Wheel Tractors:						
2-wheel drive						
Under 40 hp	3,435	3,321	+ 3.4	57,203	51,010	+12.1
40-99 hp	2,575	2,760	- 6.7	37,837	38,252	- 1.1
100-139 hp	496	738	-32.8	7,299	9,843	-25.8
Over 140 hp	757	901	-16.0	10,410	14,653	-29.0
Total 2-wheel drive	**7,263**	**7,720**	**- 5.9**	**112,749**	**113,758**	**- .9**
4-wheel drive						
Under 200 hp	258	178	+44.9	1,088	1,533	-29.0
Over 200 hp	279	224	+24.6	1,824	2,442	-25.3
Total 4-wheel drive	**537**	**402**	**+33.6**	**2,912**	**3,975**	**-26.7**
Total All Tractors	**7,800**	**8,122**	**- 4.0**	**115,661**	**117,733**	**- 1.8**
S-P Combines	919	883	+ 4.1	8,402	11,420	-26.4
Balers (under 200-lb. bales)	239	205	+16.6	7,040	8,313	-15.3
Forage Harvesters (shear-bar type)	114	156	-26.9	2,462	3,538	-30.4
Mower-Conditioners	409	343	+19.2	11,245	13,057	-13.9

Canadian Numbers Look Better

Retail sales of farm equipment in Canada finished 1985 in a relatively better position than those of the U.S., according to the Canadian Farm & Industrial Equipment Institute.

	1985	1984	Pct. Change
Farm Tractors			
2-WD under 40 hp	3,943	3,449	+14.3
2-WD 40-99 hp	8,474	8,521	-0.6
2-WD 100 hp+	4,854	5,099	-4.8
Total 2-WD	17,271	17,069	+1.2
Total 4-WD	2,524	2,519	+0.2
Total Tractors	19,795	19,588	+1.1
Mower-Conditioners	2,174	2,195	-1.0
Balers (conventional)	1,694	1,879	-9.8
Balers (round)	2,545	1,986	+28.1
Forage Harvesters	490	598	-18.1
Combines (pull-type)	1,241	914	+35.8
Combines (self-prop.)	2,838	2,710	+4.7
Swathers (pull-type)	2,371	2,214	+7.1
Swathers (self-prop.)	2,072	2,020	+2.6

Deutz-Allis Fusing Complete

As promised at a series of dealer meetings last June, the merging of Allis-Chalmers Agricultural Equipment Co. and Deutz Farm Equipment into Deutz-Allis Corp. was completed as of Jan. 1.

Ray Dague, marketing vice-president of Deutz-Allis, has announced that Ormand Scholl is vice-president, market development; Jim Peterson is general sales manager, east, based in Columbus, Ohio; and Ed Swingle is general sales manager, west, at Independence, Mo.

Scholl had been executive vice-president of Deutz Corp. in Atlanta; Peterson had been general sales manager for Deutz Farm Equipment; Swingle moves from the post now held by Peterson.

Earlier, Frank Kaplan, Deutz director of marketing, was named Deutz-Allis's manager of marketing, tractors, implements and hay tools.

According to Deutz-Allis, the merged organization now has 1,465 dealers, including 77 newly signed outlets.

Parts operations are consolidated with seven regional distribution centers and two central operations at Batavia, Ill., and Independence. Customer service and order entry functions are based in Batavia.

In mid-January, D-A launched a series of training sessions to familiarize dealers' service personnel with products in the newly merged line. The company says the program will provide over 30,000 hours of individual training.

Production of the orange tractor line at West Allis, Wis., was concluded in early December. Subsequently, all tractor production will be done in Cologne, West Germany, base of the parent company, KHD.

Briefly...

Lindsay Bros., Minneapolis, Minn., one of the major wholesalers of the farm equipment industry, has been purchased by C.O.M.B. Co., Plymouth, Minn. Hugh Lindsay, president, has retired. The Lindsay branch in Omaha, Neb., was closed Jan. 31; another branch at Mason City, Ia., was closed last year.

Allied Products Corp., Chicago, Ill., has signed a letter of intent whereby it will buy Lilliston Corp., Albany, Ga. The deal is expected to be closed approximately at the end of March.

Farmhand, Inc., Excelsior, Minn., and the Tye Co., Lockney, Tex., have entered into a marketing agreement by which Farmhand will market Tye grain drills and no-till seeding equipment in Minnesota, Iowa, the Dakotas, Nebraska, Colorado, Montana and Wyoming. The Tye line had been represented in those states by Lindsay Bros., Minneapolis.

Farm Plan Goes National

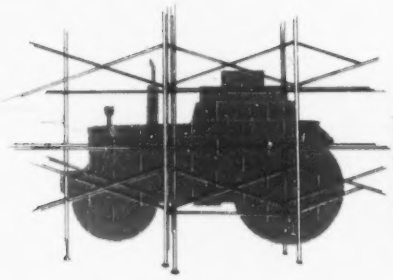
Farm Plan Corp., Madison, Wis., has announced that it is making its credit services available throughout the 48 contiguous states. Until Feb. 1, it was available in 22 states to farm equipment dealers and other rural merchants.

Previously, Farm Plan operated through local and regional banks, which purchased dealers' existing accounts receivables and assumed financing and credit administration responsibilities.

As of Feb. 1, Farm Plan Corp. assumed financing and credit administration responsibilities in new markets. Farm Plan will assume liability for transactions by Farm Plan-approved customers.

According to Ron Carne, president and founding partner of Farm Plan, "Customers can continue buying items at local merchants on credit while merchants are relieved of heavy credit burdens."

In 1984, Deere & Co. acquired Farm Plan, then operating as Association Credit Plan, Inc. It now operates as an independent financial subsidiary.



Reconstructing the Industry

It's time to take a wide-angle view of some of the key changes that just a few years have wrought in this industry we call farm and industrial equipment. We're calling this series "Reconstructing the Industry" because all the radical changes, consolidations, shifts and disappearances we've seen so far, and can expect to see more of, are more than adjustments. They are a re-scaling of the production, marketing, financing and servicing aspects of this business to fit the present and anticipated future need of our customers. And that's reconstruction.

The series opens here with a look at one major manufacturer and some of its biggest and most meaningful changes. Coming in the March issue of I&T: Scott Nesbitt takes a look at one of the merged majors.

Part I:

HOW MASSEY HAS CHANGED ITSELF

Massey-Ferguson Ltd. had to take extreme measures to survive, even before the big crunch came. What has emerged is a highly flexible company that appears headed for sustained profitability.

By Bill Fogarty

■PEOPLE at Massey-Ferguson make a point of explaining that when the rest of the farm and industrial equipment industry was still riding high in the late 1970s, they were already in trouble—and that this may have been their salvation.

It's hard to argue with the numbers. MF had been running hell-bent for supergrowth through the 1970s, just like everybody else. Worldwide, they kicked the volume up from $1.8 billion in 1974 to $2.9 billion in 1977 and $3.1 billion in 1980.

But net income figures were marching to a different drummer. MF had a profit of $100 million in 1975 and another of $108 million in 1976. Then, after profits dipped sharply in 1977 to $32 million, there was a $262 million loss in 1978. And that loss was not to be the worst, for in 1982, the red ink ran to $413 million.

How Massey-Ferguson got into so much trouble before anybody else in the business could probably fill a textbook. Victor Rice, who is MF's chairman and chief executive officer, paints this portrait:

"Those (the 1960s and 1970s) were giddy times. We sold everything we could make for top dollar, tossed up factories to make more, and paid for it all with borrowed dollars that we could pay down with ever-cheaper dollars. Like the energy business, agriculture and agribusiness really feasted on inflation....

Hindsight tells us that we were indulging in leapfrog with a dangerous playmate.

"Growth for growth's sake, when funded by inflation's funny money, is seductive. You sit back and enjoy it, forgetting that there is no free lunch. In the farm machinery business, we forgot, and we are still paying the piper."

But Massey-Ferguson managed to get into trouble deeper and sooner than the rest of the players in the industry. In I&T's opinion, it was a matter of the company trying to do too many things too soon, wanting to move into the same block in North America with Deere and International Harvester. In 1965, they set up their North American headquarters in Des Moines because, they said, they felt they had to become a major factor in the Corn Belt. That didn't happen, at least to their expectations.

True International?

If MF never felt as strong as it wanted to be in the U.S., it prided itself over the years as being one of the world's true international companies. From 65 to 70 per cent of its sales volume came from outside North America. The company at its peak was doing business in 190 countries; counting associates and licensees, it was making products in 81 factories in 31 countries. How could it be considered anything but an international?

But when the business turned sour and it was time for basic corporate soul-searching, the company's young management came to understand that they were international only in a limited sense.

Reporting to headquarters in Toronto was a collection of operating units based in France, Britain, Argentina, the U.S., Italy and elsewhere. Each unit pretty much went its own way when it came to production facilities, product lines, engineering and marketing.

"The only common denominators in MF tractors around the world," says John Ruth, "were the model numbers and the engines." Ruth is North American sales manager for the company's Tractors & Farm Equipment Div., which didn't exist in its present form a few years ago.

"Each operating unit was reporting to the corporate staff, but each was also operating as if it were a fiefdom or barony, very protective of the way it operated within its own country."

Another recognition: The changes that were getting under way in world agricultural markets were not just cyclical downturns but permanent alterations. Massey-Ferguson would have to adjust itself not only to survive the downturn that has now persisted through the 1980s, it would also have to become a company sized down to the point of making a profit in a market that was going to stay depressed for a long time, and never resume its former grandeur.

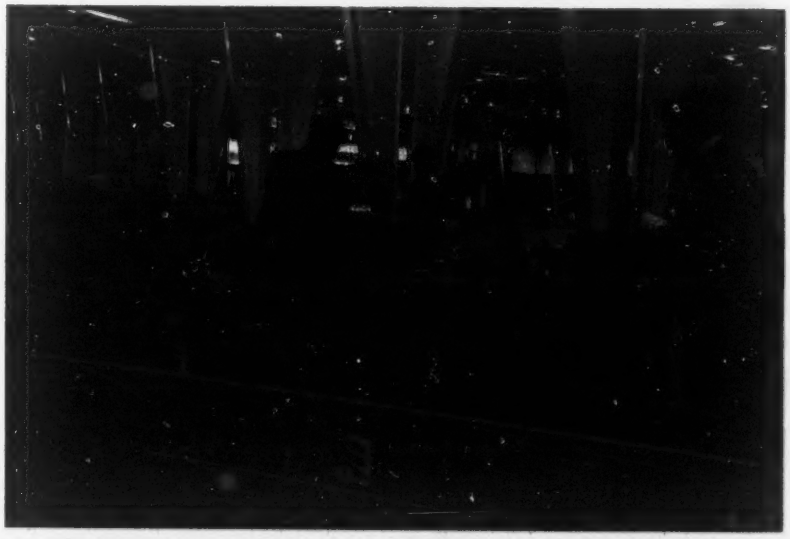
Self-definition

Massey-Ferguson also had to do what any company confronting the fundamentals of its future must do—get a fix on what business it was in. That's an expression that has suddenly become a cliche in business parlance, but it's an exercise that most companies in any industry must undertake at some point.

For MF, the core business was defined as agricultural and light industrial machinery and diesel engines.

(More...)

Victor A. Rice, MF chairman, credited with being the primary architect of Massey-Ferguson's present structure and with getting a large number of banks, and some governments, to stick with the company through difficult times. "Talking with bankers," he said recently, "has become by avocation. When I became chairman (in 1980), I never expected to develop a close relationship with an intimate circle of 220 bankers....The bankers I deal with understand that we're all in the same boat; they know that the merry-go-round of piling up debt and paying it down in ever-cheaper dollars has rumbled to a dead stop...."



At the Coventry (U.K.) tractor plant, now the source of most MF tractors sold in the U.S., automated guidance vehicles have collected the parts needed for a major component from a subassembly area. The AGVs now act as mobile work stations for fitters on the line.

Massey Changes

(continued)

And so in 1979, the company disposed of its construction machinery product line and plants. Consumer products—lawn and garden equipment and snowmobiles—were also disposed of as were other enterprises such as an office furniture business.

When a company has 81 factories, it isn't surprising that all its activities come to focus around the idea of keeping them busy. When business was good, it wasn't hard to do this and make money, but eventually, MF's self-analysis showed that it was a manufacturing-driven organization, also driven by debt.

The idea became to turn the business into a marketing-driven company—to manufacture only what it could sell.

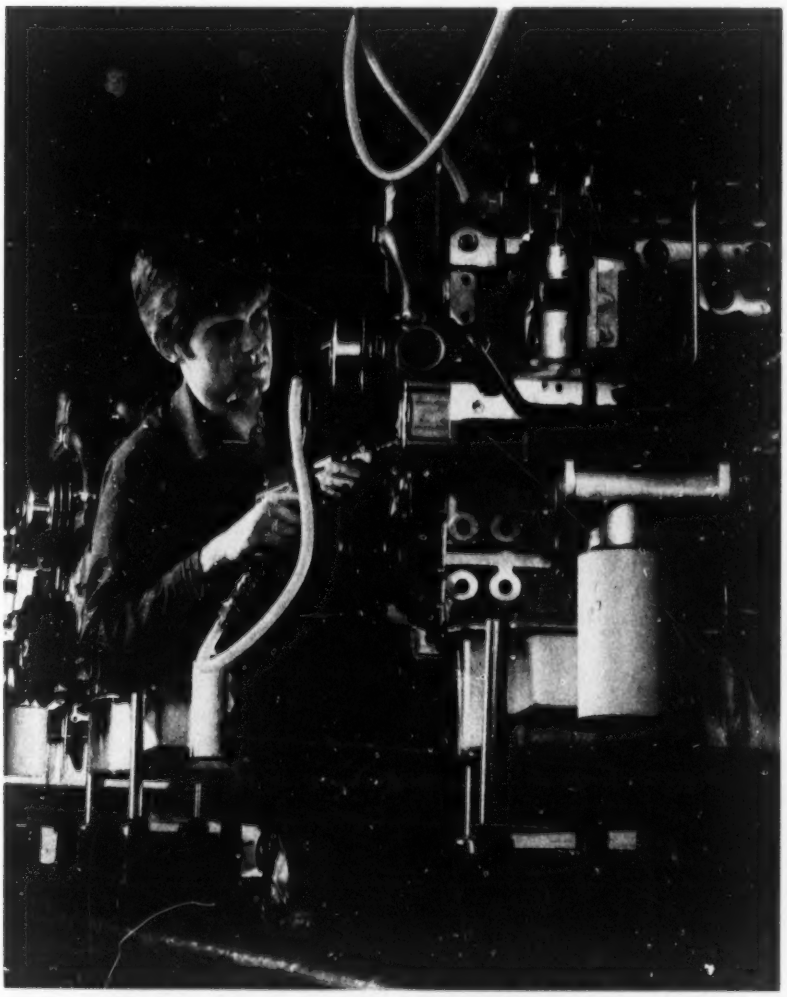
Talking to a group of bankers about the changes his company has gone through, Victor Rice recently commented:

"We understand that we must be market-driven, as in contrast to the old debt-driven days. Notice I said market-driven, not profit-driven. If your business strategy is profit-driven, you don't belong in the farm and industrial equipment industry. You're an investor, not a business manager. When you are propelled by market values, you must run your business primarily to satisfy your customers, not your lenders or your investors."

He added: "Disinflation puts a premium on marketing skills. Without the incentive of rising prices to cover rising costs, you scramble for every possible edge in the marketplace. You focus on things like product differentiation, quality control, productivity in factory and office alike, improvements in distribution and customer service in the aftermarket—anything and everything that can set you apart from the crowd."

Rice said that in such a climate of motivation, only fast-return capital investments are made, that internal cash flow, not external debt, becomes the focus of financial strategy.

"You find yourself taking extraordinary measures to control inventories and use labor effectively. You devote time to pricing strategy and you demand the most value for money from suppliers."



Perkins Engines, claiming 11 per cent of the Western world's market for non-automotive diesels from 30-300 hp, did $314 million in sales in 1984 (not counting the $86 million in sales to the parent MF). With a total capacity of 620,000 units, Perkins and its associates and licensees made 253,000 engines. Of these, 129,000 were produced at Perkins plants in the U.K. Last year, Perkins celebrated production of its 10 millionth unit.

Divisional structure

That explains a lot of the look that Massey-Ferguson has today. Once the decision was made to produce only what it could sell profitably, Massey-Ferguson went about taking the difficult but necessary actions—shutting down factories permanently, making drastic reductions in the number of employees, cutting costs, doing everything possible to lower the breakeven point. These were steps like those any other farm equipment company has had to make.

The move that was substantially different was the restructuring of MF. The 31 nationally-oriented operating units were reformed into eight product-based, worldwide divisions.

The eight divisions:

Tractors and Farm Equipment Div.—Agricultural tractor manufacturing (models from 30-150 hp), as well as tractors under 30 hp and implements sourced from contract suppliers. Tractors are made in Britain, France and Italy.

Combines & Related Equipment Div.—Combines, headers, four-wheel-drive tractors, and balers,

(More...)

Telemarketing, Teleservice to Cut Costs, Provide Needed Dealer Help

Bob Gertner, MF service specialist, talks with a dealer's service technician about a repair problem, refers to a manual for the information.

Terry Dickie calls up warranty data on a specific machine. Teleservice specialists were recruited from field service reps' ranks; other service personnel were retrained as product specialists, still do some in-field service work.

In the early 1980s, Massey-Ferguson's North American marketing organization decided that the traditional structure for reaching a market through a dealer organization had major drawbacks. Something had to be done, they felt, about the cost of servicing small dealerships.

Below a certain volume level, their research showed, MF dealers had an average inventory turn ratio of about 0.3 times per year. It might have been possible to cancel out those dealers, or many of them, and turn their trade areas over to larger retailers.

Instead, MF instituted a system of telemarketing and teleservice for these dealers. In the normal course of business, they wouldn't be visited by the blockman or the service rep, as has been the tradition in this business for generations. But they were given immediate access to a contact person at North American headquarters in Des Moines who functioned as a blockman, or a service rep trained to provide information necessary on service problems.

According to John Ruth, head of Tractor Div. sales in North America: "At the end of two years, telemarketing dealer sales were up. Assets necessary to support those sales were down 47 per cent. Inventory turnover among these dealers went from an average of once every three years to once a year. By this time, we were handling 4,000 calls a month—200 a day."

The teleservice program topped MF expectations, according to Ruth. "We were surprised to learn that 90 to 95 per cent of all tractor repair problems could be handled by phone almost immediately. For the others, a field service rep was scheduled into the dealership."

Being put on telemarketing and teleservice caused some MF dealers to drop out, which company executives had anticipated. It also caused some dealers to raise their order levels enough to qualify them for a live district sales rep and service rep., as had been expected.

What wasn't anticipated was that dealers with enough volume for in-person calls wanted access to telemarketing and teleservice support, too. They got it.

Massey now has 16 telemarketing district sales managers and six service specialists taking calls from the comp[illegible]e North American dealer organization.

Says Graeme Leonard, head of the Tractor Div. product support organization, other service supervisors in the organization were turned into product specialists. "They spend about 60 per cent of their time in teaching dealers how to demonstrate the product and another 20 per cent on service training of dealership service technicians. Most of the rest of the time is spent taking care of the service problems that require a visit to the dealership."

Leonard says that the teleservice specialists get about 350 calls a week, and have gotten up to 550 in a week. About 70 per cent of the calls concern a service problem; 15 per cent are about parts (if the dealer needs a part, he's transferred to parts); 7 per cent are about products; warranty and related policy matters take up 5 per cent.

"Most of the calls are from dealerships or our own people," he said. "Customers make about 5 per cent of the calls, and we try to get them together with the dealer in a three-way conversation."

One of the problems, Leonard admits, is getting the six service specialists off the phone long enough for more training. "Every other month, the specialists go to the field and meet with dealers and customers in their areas."

Notes Howard Lyndon, general product service manager, "The calls themselves provide an upgrading in product and service knowledge for the six specialists. And they never quit on seeking to improve themselves. Typically, they'll spend their lunch time watching films on things like engine failure analysis or clutch rebuilding."

mostly for North America. Combines for Europe are sourced from other suppliers. Production is in Brantford and Toronto, Ont.

Canadian Foundries Div.—Production of gray iron and nodular castings.

Engines Div.—Production of 30 to 1,200-horsepower Perkins diesel engines, primarily in the United Kingdom with finishing, assembly and remanufacturing in France, Australia and the United States.

Industrial Machinery Div.—Industrial wheeled tractors and backhoe-loaders, off-highway materials-handling machines. Production and headquarters at Manchester, England.

Components Div.—Production of hydraulic cylinders, valves and related equipment, based at Eschwege, West Germany.

Australia Div.—The only national operating unit remaining, it manufactures combines and implements for the Australian market.

Trade & Barter Div.—This unit engages in product-for-product transactions, focusing on Third World markets where currency reserves are limited. Offices are in London and New York.

Each of these divisions, except for Australia, has been given a global marketing charter. That is, it is responsible for selling its own products all over the world.

Marketing differences

This means, for example, that a Massey-Ferguson dealer in the U.S. who handles the company's entire range of farm tractors, implements and combines and also carries the industrial equipment line would have several separate MF contracts.

It's also possible that a visitor could come into a town and find the MF sign in three separate locations—a dealer handling farm tractors and implements, another handling combines (and possibly four-wheelers) and a third covering the industrial market.

Such a situation might cause some diffusion of identity, but it makes some other things possible. In the past, some manufacturers, MF among them, have appointed dealers for a given area only to learn that one segment of the product line—perhaps combines, perhaps tractors—was to get the effort, to the neglect of the rest of it. It's called "cherry picking" by many sales managers.

The structure MF has adopted allows each division to focus on its product specialty and go after its markets without what might be encumbrances. Dealers may like to deal with one company, one division, one blockman and one service rep, but many of them have done fine for many years using multiple suppliers.

In effect, Massey-Ferguson has become a collection of shortline companies while the mergers of the past 15 months have established or extended other companies as full-line producers.

MF is sourcing most of the implements it sells around the world from other manufacturers. The combines it sells in Europe are made by a Danish company. Plows for Africa are from a Turkish factory.

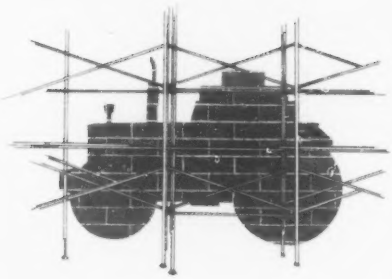
James Felker, who heads MF's Tractors & Implements Div., was asked not long ago how he reacts to the statement that apart from the tractors, his is largely a distributive organization. "It makes me happy," he said. "We're glad we're sourcing and selling these products at a profit, not manufacturing them."

Restructuring work

Massey has not managed to move through this transition without spending a lot of time with banks and governments. Since 1981, the company has engaged in two major financial restructuring programs involving more than 200 banks around the world.

And in December, MF announced another plan. The Combines and Foundries divisions would be recapitalized as a privately held associate company in which Massey-Ferguson would be a minority (40 per cent) shareholder. Lenders and other parties (presumably including the governments of Canada and Ontario) would hold the rest.

As of this writing, the plan is under consideration. If accepted by shareholders of Massey-Ferguson, the resulting company would be



Massey Combines Corp., with assets of $350 million and debts and other obligations of $240 million.

The starting date of the company would be retroactive to Oct. 31, 1985. Losses sustained by the present Combine Div., "particularly in the final months of fiscal 1985 (ended Jan. 31), would be funded through the new entity's reorganized capital structure," said Victor Rice.

In the first nine months of 1985 (through Oct. 31), the Combines Div. lost $35 million while the rest of the company would have posted earnings of about $36 million.

In other words, if MF can reduce its crushing losses in the combine business substantially (40 per cent ownership of a business with serious losses is better than 100 per cent), opportunities for doing more with its Tractors and Farm Equipment Div. should be substantial.

Tractor outlook

Massey-Ferguson's tractor marketers estimate that the world tractor market (outside the socialist bloc nations) has fallen by 25 per cent in the past decade—from 808,000 units in 1975 to 608,000 last year.

The market will be up slightly by 1990 to 625,000 tractors and down again by the end of the century to 583,000. Tractor demand in the major developed markets will generally move downward through the next 15 years, according to MF, thus:

Year	Europe	North America
1985	250,000	138,000
1990	238,000	138,000
2000	205,000	118,000

But in the developing world—Latin America, Africa and Asia—they expect demand to move

(Continued on page 34)

FORECAST: QUIET 1986, BETTER IN 1987

By Bill Fogarty

■NOT MUCH change in the coming year from 1985. That's how the consensus forecast of the Farm & Industrial Equipment Institute's Marketing & Management Conference can be summed up. But then that's how they predicted 1985 would go, and where it went, for the most part, was down.

The sales forecast is made two times a year. Participating executives from FIEI member companies predict the increase or decrease, if any, in unit sales of major industry products. Their forecasts are collated and the numbers that turn up on the table are medians expressed as units sold at retail.

It hasn't been easy for industry marketers. The leveling out and improving that they have been anticipating for several years hasn't materialized, except for the interesting variants in the areas of medium and small tractors.

For 1986, marketing people in the Farm Equipment Div. of FIEI (field equipment) have considerably diverging views on the total sales outlook, as expressed in terms of retail dollars. Among 50 participants, 16 see no change in sales volume; seven see increases ranging from two to 13 per cent; and the remaining 27 anticipate declines of from one to 11 per cent. That works out to a median of about two or three per cent down from 1985.

The Agri-Equipment Div. (farmstead and related equipment) executives don't see it quite the same way for their segment of the industry. The 28 participants had a range of expectations from a 25 per cent increase in retail dollar volume to a decrease of 15 per cent. Ten expect sales to go up, nine see no change and nine look for a decline. The median: No change.

The bright spot

The industry sold 51,000 tractors of under 40 pto horsepower in 1984. When 1985 was getting started, the companies that sell models in this range were not expecting to do as well—50,000 units. They stuck by their consensus forecast last spring

(Continued on page 32)

U.S. RETAIL SALES FORECAST, 1986, 1987
(In units)

Product	Actual Sales, 1984	Actual Sales, 1985	Sales Forecast for 1986	Sales Forecast for 1987
Farm Tractors				
Under 40 HP	51,010	57,000E	57,400	58,500
40-99 HP	38,253	38,250E	38,000	38,000
100 HP and over	24,495	18,028E	17,000	17,000
4-wheel drive	3,975	2,600E	2,550	2,775
Total Farm Tractors	117,733	115,870	114,950	116,275
S-P Combines	11,422	8,200E	8,000	8,250
Corn Heads	6,419	4,900E	4,431	4,775
Forage Harvesters[1]	3,538	2,500E	2,400	2,500
Balers, square[2]	8,314	7,000E	6,900	7,200
Balers, round[3]	11,170	9,500E	9,500	9,950
Windrowers	2,591	2,000E	1,925	2,075
Mower-Conditioners	13,057	11,100E	10,987	11,300
Grinder-Mixers	2,349	1,750E	1,700	1,600

E: Estimated 1: Shear-bar type 2: Bales under 200 lbs. 3: Bales over 200 lbs.
Source: Farm & Industrial Equipment Institute

Value of Shipments, 1980-1984
Tractors, Farm Machinery and Garden Equipment
Including Attachments and Parts

(In thousands of dollars)

	1984	1983	1982	1981	1980
Wheel Tractors, Farm Type	2,074,529	1,720,680	2,215,466	3,066,418	2,761,480
Wheel Tractors, Non-Farm	97,031	89,508	80,404	97,257	115,154
Attachments for Wheel Tractors, Farm and Non-Farm	7,545	10,350	24,037	44,965	48,066
Parts for Wheel Tractors, Farm and Non-Farm	228,681	193,702	246,970	421,320	469,505
Wheel Tractor Chassis, Shipped as Part of Shovel Loader/Backhoe	427,047	396,454	234,388	315,639	306,736
SUBTOTAL	**2,834,833**	**2,410,694**	**2,801,265**	**3,945,599**	**3,700,941**
Planting, Seeding and Fertilizing Machinery	608,020	447,490	673,080	802,378	680,743
Harrows, Rollers, Pulverizers, Stalk Cutters	376,947	340,951	360,522	552,491	555,377
Plows	151,914	129,746	151,887	233,199	245,875
Harvesting Machinery	1,424,120	1,478,807	2,069,585	2,579,889	2,207,075
Haying Machinery	610,874	541,899	545,099	711,748	778,199
Farm Dairy Machines and Equipment	99,651	116,133	110,656	159,961	143,372
Sprayers and Dusters	251,792	228,465	257,882	248,491	254,083
Farm Elevators and Blowers	69,862	72,576	112,436	117,986	140,809
Cultivators and Weeders	173,260	132,889	202,153	235,994	275,793
Machines for Preparing Crops for Market or Use	191,446	194,556	282,420	319,425	340,083
Farm Poultry Equipment	116,230	102,443	110,409	144,939	174,931
Hog Equipment	41,104	50,490	41,946	41,530	63,951
Other Barn and Barnyard Equipment	174,530	184,566	202,249	257,298	274,220
Farm Wagons, Other Farm Transportation Equipment	132,718	140,300	172,989	212,087	207,105
Irrigation Systems	366,972	330,675	241,395	349,237	308,974
Commercial Turf, Mowing Equipment	270,728	227,531	199,246	191,147	200,666
Other Turf, Grounds Care Equipment	50,928	35,641	38,543	40,743	35,430
Consumer Nonriding Lawn, Garden, Snow Equipment	1,531,129	1,376,463	1,283,718	1,167,768	1,374,557
Consumer Riding Lawn, Garden, Snow Equipment	1,365,402	1,102,952	964,550	899,576	953,403
SUBTOTALS	**8,057,627**	**7,230,573**	**8,020,765**	**9,265,887**	**9,215,006**
GRAND TOTAL	**10,982,460**	**9,641,267**	**10,882,030**	**13,211,486**	**12,915,947**

Source: U.S. Commerce Dept. Current Industrial Reports: Tractors (M35S) and Lawn and Garden Equipment (MA-35A).

Shipments of Farm Machines and Equipment

(In units, 1980-1984)

Type of Farm Equipment	1984	1983	1982	1981	1980
Balers, hay (all types):					
Bales under 200 lbs.	10,106	6,681	10,130	15,936	17,065
Bales over 200 lbs.	14,701	18,337	14,302	23,213	32,446
Blowers (includes forage type, combination grain-forage type)	3,939	3,825	3,674	6,771	9,752
Cabs (metal), farm tractor	8,397	12,757	19,674	10,597	10,565
Cabs, other equipment	580	671	4,739	6,269	4,051
Combines, grain, pull-type and self-propelled	11,296	13,673	22,726	32,062	28,502
Corn heads	4,388	4,121	7,228	17,107	14,601
Cultivators, corn and cotton types	9,419	8,510	14,622	25,957	28,726
Cultivators, field:					
Pull-type	6,655	4,921	6,493	9,385	14,897
Mounted	2,740	2,252	2,024	3,044	5,257
Cultivators, rotary:					
Ground driven, sections and machines	5,028	5,041	9,986	15,025	20,55
Ground driven, integrally mounted					
Power driven				456	486
Cultivators and weeders, other	17,040	17,519	24,347	30,936	47,727
Cutters and shredders or rotary mowers (pto):					
Flail-type	19,786	17,499	11,451	9,541	12,149
Horizontal blade-type	94,452	88,520	68,433	66,944	75,677
Diggers, peanut (shakers and windrowers but not combines)	1,145	1,055	974	685	1,233
Combines, peanut				270	880
Distributors (fertilizer):					
Dry	8,205	7,159	7,157	6,129	6,254
Liquid	7,581	6,105	5,952	8,841	10,070
Anhydrous Ammonia	2,359	1,697	3,104	6,094	6,693

(More...)

Type of Farm Equipment	1984	1983	1982	1981	1980
Dryers, grain, hay and seed batch type, pto or electric-motor operated	1,658	1,310	4,347	5,413	7,899
Continuous flow-type	942	452	835	1,348	1,419
Heated air units	7,198	7,361	22,178	12,553	14,983
Dusters, power, all types	134	98	493	859	794
Elevators, portable:					
Single chain	3,057	2,721	3,307	5,507	7,316
Double chain	1,796	2,218	2,998	3,074	6,680
Auger-type, under 6-in. dia.	11,0193	10,255	13,874	17,607	25,725
Auger-type, 6-in. dia.	6,351	6,191	7,891	8,373	27,885
Auger-type, over 6-in. dia.	9,928	10,463	18,354	17,537	23,809
Elevators, stationary and other	36,229	32,762	97,680	89,034	33,268
Fans, crop drying and aeration	9,851	16,979	37,263	27,452	26,162
Grain drills, fixed-frame, all types	12,782	10,043	17,331	21,861	19,448
Grain heads for combines	14,151	14,699	24,656	48,656	46,162
Grinder-mixers, stationary and portable	2,907	4,987	4,653	8,031	14,152
Harrows, disk	25,330	23,157	27,448	51,639	67,676
Harrow sections (spike-, spring-, tine-tooth and power)	42,482	42,202	59,404	75,246	96,893
Harvesters, beet	139	139	244	289	246
Harvesters, forage, field, shear-bar type, self-propelled and pull	3,707	4,406	5,316	7,309	12,761
Attachments for shear-bar type, pickup and cutter-bar hay units	5,966	6,500	6,189	8,999	9,785
Row crop units, all sizes	4,301	4,476	5,707	6,857	11,800
Flail-type, including discharge spouts	946	951	1,049	2,259	3,062
Harvesters, potato	347	302	342	387	258
Harvesting machinery, other	3,989	3,028	5,031	7,816	8,108
Levelers or scrapers	4,199	4,971	4,089	6,122	6,931
Loaders, field, for baled hay	1,916	2,000	2,929	2,868	6,457
Loaders, tractor mounted, farm	26,153	18,547	17,243	23,322	36,547
Mills, feed, farm size (includes grinders and crushers of the hammer, burr or roller types	2,623	3,334	4,206	6,481	8,035
Mixers, feed, farm size	1,894	1,886	2,293	3,094	3,162
Mowers, cutter bar-type	5,443	4,515	6,550	7,687	8,586
Mower-conditioners, self- propelled and pull-type	19,218	15,048	20,051	31,059	38,071
Planters, corn and cotton, all types	58,674	34,530	108,394	163,096	156,482
Planters, row crop units (quantity in number of rows)					
Plows, chisel or sweep type:					
Pull-type	4,001	3,681	4,910	6,738	14,313
Mounted	2,065	2,119	4,061	4,618	6,094
Plows, disk-chisel combination	4,753	3,569	4,105	6,059	3,195
Plows, disk, 1-way, 2-way (harrow, cylinder, great plains, all sizes)	2,727	2,360	3,010	4,832	8,302
Plows, subsoiler					
Plows, terracing and ditching	1.029	1,057	1,039	1,756	2,383
Plows, moldboard					
Pull-type, one-way	580	551	998	2,503	3,263
Mounted, 1-way	2,387	2,460	3,081	6,111	8,680
Semi-mounted, 1-way	1,053	1,501	2,197	11,485	11,817
Pull-type and mounted, 2-way	1,011	1,212	2,262	3,297	2,999
Plows, other (except snow)	4,386	3,706	5,482	4,654	6,111
Rakes, hay, side-delivery,	9,069	7,266	10,089	13,615	19,707
Sprayers, field and row crop type:					
Power, self-propelled	1,740	1,202	2,305	2,010	3,516
Power, tractor-mounted	17,205	16,024	18,589	24,250	25,549
Power, non-tractor-mounted	6,492	5,231	5,197	8,898	14,089
Sprayers, power, not field or row crop type	4,930	5,246	6,660	6,203	7,444
Sprayers, power, air-carried	3,650	3,576	5,742	6,996	6,286
Spreaders, manure:					
Conveyor type	8,018	9,177	9,067	11,802	17,029
Tank type	3,448	2,274	2,533	4,540	7,188
Stackers, throwers, for hay	3,999	3,259	3,722	8,584	1,175
Tillage equipment, combination roller/harrows, disk or coulter, field cultivators, disk or coulter/spring tooth	5,341	3,298	3,325	6,356	8,193
Tool bars, basic units, pull, mounted	1,663	1,267	3,446	4,416	4,277
Tractors, tracklaying type	8,670	7,247	7,159	15,789	18,208
Tractors, wheel					
Farm type	50,271	45,966	64,784	118,209	118,240
Non-farm type	6,206	5,767	5,323	7,480	10,029
Transplanters and broadcast seeders	15,263	17,298	21,308	23,854	20,872
Wagons, farm type, chassis only, and trailer gear	24,471	21,540	24,880	42,249	46,642
Wagon boxes and racks for mounting on wagons and trailer gear					
Manual unloading or dump	14,423	10,454	9,675	14,621	16,998
Gravity unloading, grain type	6,687	5,807	9,361	13,506	24,028
Power unloading	9,304	10,040	10,310	14,864	18,038
Wagon boxes with integral running gear	2,380	2,828	3,385	5,559	5,737
Windrowers for grain, pull-type	615	502	848	NA	828

In some cases, I&T has combined data because of space limitations. If you need more information from MA-35A, write us.
DATA: Current Industrial Reports, Series MA-35A, Bureau of the Census. NA – Not available or not applicable.

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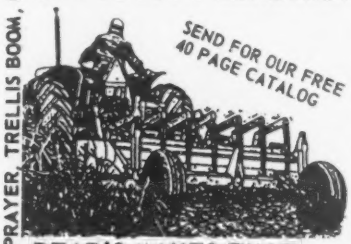

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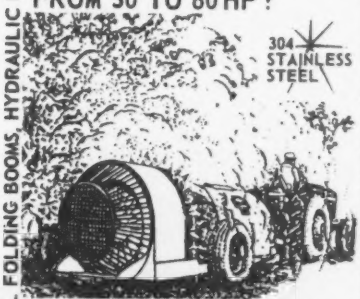

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FIEI Forecast

(Continued from page 24)

–50,000 units. And when 1985 bowed out, total sales were up about 12 per cent to 57,000 units.

I&T asked one industry executive involved in marketing the under-40-hp tractors how this substantial an upturn could have been missed by the forecasters.

"We underestimated the strength of that part of the market because we don't really know how to put a fence around it. Most of those tractors go for non-farm use or for farms operated as a second enterprise by professionals in other fields." One example cited was a boomlet in demand by airlines for the small tractors as haulers of baggage wagons, replacing more costly industrial vehicles.

It wasn't as dramatic, but the 40-99 horsepower tractor group pulled a mild upset. The industry sold 38,000 of them in 1984 and in the spring of 1985, the prediction was that sales would ease off to 36,750 units. Wrong again; sales in 1985 finished about dead even with 1984. For 1986, the forecasters are looking for sales to hang at about the same level.

Things got darker from there on in the forecasting and selling of tractors of 100 horsepower and over. In 1984, 24,495 units were sold. For 1985, the consensus was that this volume would hold, but the year wound up with a very large drop–to about 18,000 tractors.

Four-wheel-drive predictions and sales results were even worse: Predicted–sales of 3,800 units, reduced to 3,500 by spring. Results–2,600 units sold, down by a third.

Other field equipment

Manufacturers of moldboard plows, looking at a 1985 sales decline of 11.5 per cent, expect another five per cent drop in 1986 and a leveling out in 1987. Disk harrow producers, after a 16 per cent slide in 1985, see 1986 holding at the 1985 level, with a modest upturn in 1987.

Field cultivators, down 8 per cent in 1985, were seen as having sales hold steady in 1986 and improve a few percentage points in 1987. The year past was easier on the chisel plow group, which estimated only a 5 per cent loss. This year is expected to show a 2.5 per cent increase, followed by another one in 1987 of 4.5 per cent.

Manure spreaders fell off sharply in sales last year, an estimated 13 per cent. A lighter decline, 3 per cent, is seen for 1986, and no change for 1987.

Farmstead equipment

Manufacturers of farmstead equipment have a decidedly brighter outlook for 1986 on a product-by-product basis. The auger and elevator producers see a 5 per cent sales improvement in 1986 and one just like it in 1987. Makers of in-bin crop dryers are looking for a 10 per cent improvement in 1986, then no change in 1987. The batch and continuous-flow dryer executives expect sales to go up 8 per cent in 1986 and 7.5 per cent in 1987.

Makers of equipment for feeding dairy and beef cattle expect a modest 2 per cent rise in 1986 and a 3 per cent increase in 1987. Hog equipment producers don't expect any change this year but a 5 per cent improvement next year.

Grain bin manufacturers expect a 10 per cent rise this year and no change from that level in 1987. Milking machine executives see no changes either year from their 1985 experience.

All these percentages are median estimates; individual product predictions can vary wildly. Makers of in-bin crop dryers, for instance, see anything from up 25 per cent to down 30 per cent in arriving at their 10 per cent improvement estimate for 1986. Similarly, producers of chisel plows, estimating a median 2.5 per cent improvement this year, have a range of estimates running from plus 35 per cent to minus 5 per cent. □

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Implement & Tractor

Massey Changes

(Continued from page 14)

from last year's 220,000 units to 249,000 in 1990 and 260,000 by 2000.

And demand for tractors of over 80 horsepower is expected to go up on a worldwide basis, according to MF—from 149,000 last year to 179,000 by 1990 and holding at 176,000 in 2000. Most of the growth will be experienced in developing parts of the world.

Massey has a pretty solid position in the Third World, but its competitors probably have a similar world outlook and will be working toward enlarging their positions there over the next 15 years. Meanwhile, Massey must concentrate on holding present tractor market shares in Europe and North America.

In I&T's opinion, if Massey-Ferguson can regain a position of steady profitability, its earnings will best be directed at strengthening its tractor product line through all important horsepower ranges and further upgrading its dealer organization in Europe and North America.

Massey-Ferguson has come a long way since the rumors were going around in the fall of 1980 that they were about to go bankrupt. It seems unlikely that they are finished with major changes. □

Book Looks

The Rise and Fall of IHC

The story of International Harvester's rise to industry giant and fall to failure, with special attention to the people who ran the company, is told in lavish detail by Barbara Marsh, in *A Corporate Tragedy,* the agony of International Harvester Co., published by Doubleday & Co., Garden City, N.Y.

Tractor Tests Revisited

Nebraska Tractor Tests Since 1920, by C.H. Wendel, provides a photo and capsule report on each machine tested at the lab since it began. An interesting look back through time, the book is available from Crestline Publishing Co., 1251 N. Jefferson, Sarasota, Fla. 33577.

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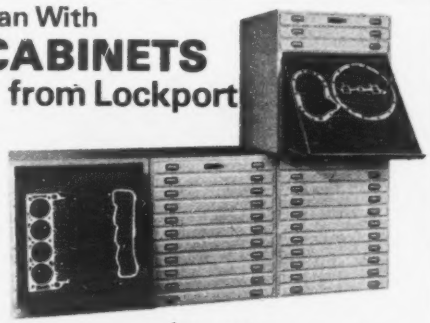

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Auction Prices

Asterisk beside price indicates highest bid offered on tractors that were not sold.

JONES FARM EQUIPMENT CO.
Dothan, Alabama
December 10, 1985

ALLIS-CHALMERS TRACTOR

7060, duals, 1975 (Good) 6200

CASE TRACTORS

1370 diesel, 1973 (Good) 8000*
1170, cab, 1970 (Good) 5000*
1070 diesel, cab, 1975 (Fair) 2075*

FORD TRACTORS

7700 diesel, 1977 (Fair) 6000
7000 diesel, 1975 (Good) 5000*
5000 diesel, 1973 (Good) 3050
5000 diesel, 1969 (Good) 4400
5000 diesel, 1966 (Good) 2650*
5000 diesel, (Fair) 2600*
4110 diesel, 1982 (Excellent) 5500*
4000 diesel, 1975 (Good) 3950
4000 diesel, 1974 (Good) 3800
4000 diesel, 1974 (Good) 3600
4000 diesel, 1974 (Good) 3600
4000 diesel, 1974 (Good) 3550
4000 diesel, 1974 (Good) 2600
4000 diesel, 1969 (Good) 3700
4000 diesel, 1969 (Fair) 2400
4000 diesel, 1967 (Fair) 2300*
4000 diesel, 1963 (Fair) 1500*
3910 diesel, (Good) 7800*
3910 diesel, (Excellent) 7850
3600 diesel, 1976 (Good) 4350
3600 diesel, (Good) 5400*
3600 diesel, (Good) 2900*
3000 diesel, 1975 (Good) 2500*
3000 diesel, 1974 (Good) 2500
3000 diesel, 1973 (Good) 3400
3000 diesel, 1972 (Good) 2500
3000, (Good) 3500
3000 diesel, 1970 (Good) 3900
3000 diesel, 1969 (Good) 2900*
3000 diesel, 1966 (Good) 2350
2000 diesel, 1973 (Good) 2850
2000 diesel, 1966 (Fair) 2500
2000 diesel, 1965 (Good) 2300*
2000 diesel, (Fair) 1800*
841, 1959 (Good) 2100
641, 1957 (Good) 2150
601 diesel, (Good) 2600*
601, (Rough) 1000
Dexta, (Fair) 975
Dexta, (Rough) 825
9N, (Rough) 675
8N, (Fair) 1375
8N, (Fair) 1125
8N, (Fair) 1100*

INTERNATIONAL HARVESTER TRACTORS

784 diesel, 1978 (Good) 5650
674 diesel, cab, 1977 (Good) 4750
674 diesel, cab, 1976 (Good) 4750
674 diesel, cab, 1975 (Good) 5200
674 diesel, cab, 1975 (Good) 4050
674 diesel, (Fair) 1850
574 diesel, cab, 1977 (Good) 4000
574 diesel, cab, 1975 (Fair) 3350*
574 diesel, cab, 1975 (Good) 3450
574 diesel, cab, 1974 (Good) 4300
574 diesel, cab, 1974 (Good) 4200
574 diesel, 1974 (Fair) 2900
574 diesel, 1972 (Good) 4100
544 diesel, 1970 (Good) 2800
504, (Fair) 1100
454 diesel, cab, 1975 (Good) 3900
454 diesel, cab, 1975 (Good) 3000
444 diesel, 1970 (Good) 2600
B414 diesel, (Fair) 1300
100, cult., (Fair) 1000
Super C, (Fair) 850*
Super A, (Fair) 1150*
Cub, (Rough) 800*

JOHN DEERE TRACTORS

4040 diesel, cab, 1978 (Good) 7500
4020 diesel, 1964 (Rough) 1900*
3120 diesel, (Good) 2750*
3120 diesel, (Good) 1050
2840 diesel, cab, 1979 (Good) 5750
2630 diesel, 1975 (Good) 4000
2440 diesel, 1976 (Good) 4650
2030 diesel, (Fair) 3000
2030 diesel, cab, 1975 (Good) 4600
2030 diesel, 1973 (Good) 4200
2020 diesel, 1966 (Fair) 2550
2010 diesel, (Rough) 1400
1010, (Fair) 1950*
302 diesel, 1974 (Good) 3100
302 diesel, 1974 (Good) 2900

MASSEY-FERGUSON TRACTORS

1085 diesel, 1976 (Good) 3800
1085 diesel, 1975 (Fair) 4000
1085 diesel, 1975 (Good) 4750
1155, duals, 1977 (Good) 5000*
1105 diesel, 1976 (Good) 3500*
575 diesel, (Fair) 1500*
282 diesel, 1984 (Excellent) 8500*
275 diesel, 1975 (Good) 4750
275 diesel, cab, (Good) 4850
265 diesel, 1975 (Good) 5000
255 diesel, 1979 (Good) 3800
255 diesel, 1975 (Good) 4700*
250 diesel, (Good) 6500
245 diesel, 1977 (Good) 4900
235 diesel, 1975 (Good) 3700*
235 diesel, 1975 (Good) 3600
175 diesel, (Fair) 2825
175 diesel, 1973 (Fair) 2700
175 diesel, 1966 (Fair) 2750
175 diesel, (Good) 1600*
165 diesel, 1975 (Fair) 2300*
165 diesel, 1974 (Good) 3500
165 diesel, 1973 (Good) 3250
165 diesel, 1970 (Good) 1850
165 diesel, 1969 (Fair) 2000
165 diesel, 1967 (Good) 3000
150, 1965 (Good) 2600
135 diesel, 1973 (Good) 3350
135, 1972 (Good) 3900
65 diesel, 1960 (Fair) 2100
65 diesel, (Fair) 1700
65, (Fair) 1100
50 diesel, 1962 (Fair) 1700
35, (Fair) 2150
35, 1961 (Fair) 2000
35 diesel, 1961 (Fair) 2100
35 diesel, 1961 (Fair) 2000
35, 1960 (Good) 1600
35, (Fair) 1550*
35 diesel, 1960 (Rough) 850*
TO30, (Rough) 950
TO30, (Rough) 800

(More...)

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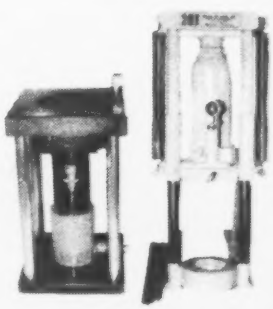

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(continued)

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25, (Fair) 2100*

LONG TRACTORS
560, (Good) 1975
445 diesel, (Fair) 1100
360 diesel, (Good) 2000

SATOH TRACTOR
Bull diesel, (Good) 2500

YODER & FREY, INC.
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December 10, 1985

JOHN DEERE TRACTORS
70,1954 (Fair) 900*
2440 diesel, 1978 (Rough) 5800*
620, (Fair) 1125
620, 1957 (Fair) 1475
620, ... 1300
630 diesel, 1959 (Fair) 1750
720, 1957 (Good) 2130
730 diesel, 1958 (Fair) 2000*
820, 1957 (Fair) 2150
1020, 1970 (Rough) 2250
2010, 1962 (Rough) 2100*
3020 diesel, 1968 (Good) 4550
3020, 1968 (Good) 2400*
3020, 1964 (Good) 3150
3020 diesel, 1965 (Good) 3750
4000, 1971 (Good) 4300*
4010 diesel, 1963 (Fair) 4950
4010 diesel, 1963 (Good) 4000*
4020 diesel, 1968 (Good) 5700*
4020 diesel, 1965 (Good) 4900*
4020, 1964 (Fair) 2700*
4020 diesel, 1967 (Good) 5450
4020 diesel, 1965 (Fair) 5150*
4020 diesel, 1967 (Fair) 5000*
4020 diesel, 1966 (Good) 8250*
4230 diesel, 1971 (Good) 7000*
4320 diesel, 1972 (Good) 6600*
4320 diesel, 1967 (Fair) 4100*
4320 diesel, 1972 (Fair) 6250*
4430 diesel, 1975 (Fair) 13,500*
4430 diesel, 1976 (Good) 9000*
4430 diesel, 1974 (Good) 9250*
4440 diesel, 1979 (Good) 15,500*
4440 diesel, 1980 (Fair) 14,500
4440 diesel, 1980 (Good) 17,000
4520 5300
4620 diesel, 1971 (Fair) 6500
4620 diesel, 1971 (Good) 6500*
4630 diesel, 1977 (Rough) 7000*
7630 diesel, 1978 (Good) 10,000*
4840 diesel, 1979 (Good) 19,000*
6030, 1972 (Fair) 7500*
7520 diesel 8800
4430 diesel, 1975 (Good) 11,000*
4430 diesel, 1973 (Fair) 9200

CASE/DAVID BROWN TRACTORS
730, 1965 (Rough) 1175
830, 1965 (Fair) 1200
830, 1965 (Fair) 800
930, 1965 (Fair) 1800
1270 diesel, 1974 (Fair) 5200*
2390 diesel, 1979 (Fair) 11,500*

FERGUSON & MASSEY-FERGUSON TRACTORS
TO-20, 1949 (Rough) 950
TO-30, 1951 (Good) 1700*
44, 1949 (Good) 425*
35, 1961 (Fair) 1700
35 diesel, 1963 (Rough) 1700*
35 diesel, 1961 (Good) 1900*
65, 1963 (Rough) 1775
135 diesel, 1969 (Rough) 2400*
135 diesel, 1972 (Fair) 2500
165 diesel, 1973 (Good) 3250
165 diesel, 1970 (Rough) 2250*
165 diesel, 1967 (Rough) 2200
165 diesel, 1969 (Rough) 3100*
165, 1968 (Fair) 3350
165, 1972 (Fair) 2350
165, 1967 (Rough) 2600*
165, (Rough) 1500
165, 1971 (Fair) 3000*
180 diesel, 1967 (Fair) 3300*
245 diesel, 1979 (Good) 5725
255, 1979 (Good) 5400*
265 diesel, 1980 (Fair) 3600*
265 diesel, 1985 (Excellent) 5500
285 diesel, ... 4900
285 diesel, 1978 (Fair) 5250
1085 diesel, 1967 (Fair) 2600*
1100, (Good) 4400*
2705 diesel, 1979 (Fair) 9450
290 diesel, 1985 (Excellent) 8500*
290, 1985 (Excellent) 8250

OLIVER TRACTORS
77, 1953 (Fair) 700
77 diesel, 1954 (Fair) 525*
88, 1954 (Good) 700
550, 1957 (Rough) 1650*
550 diesel, 1958 (Rough) 1400
770, 1958 (Fair) 600
1650, 1967 (Fair) 2550
1650 diesel, ... 1550
1655, ... 3250
1850 diesel, 1965 (Good) 3500*
1855 diesel, 1973 (Good) 4300*
1855 diesel, 1972 (Good) 3800*
1855 diesel, 1972 (Good) 3900*
1855 diesel, 1972 (Good) 4500
2255, ... 5400

COCKSHUTT TRACTORS
35, 1954 (Fair) 600
1800, 1962 (Fair) 2100

MINNEAPOLIS-MOLINE TRACTOR
445, 1962 (Fair) 575

INTERNATIONAL HARVESTER TRACTORS
A, 1951 (Rough) 1475*
Cub, 1950 (Fair) 1050*
H, 1940 (Rough) 470*
H, 1949 (Fair) 600*
H, 1942 (Fair) 410
SH, 1952 (Fair) 550
M, 1946 (Rough) 600*
M, 1951 (Rough) 750*
M, 1947 (Rough) 750
M, 1950 (Rough) 675*
Sup. M, 1952 (Fair) 750*
Sup. M, 1952 (Good) 1175
Sup. M, 1947 (Fair) 725*
384, 1978 (Good) 6250
400, 1959 (Rough) 725*
450, 1956 (Fair) 1375
454, 1971 (Fair) 5300
460, 1960 (Rough) 1300
504, 1967 (Fair) 1800*
560 LP, 1960 (Good) 1600*
574 diesel, 1976 (Fair) 3100
656, 1970 (Good) 3500*

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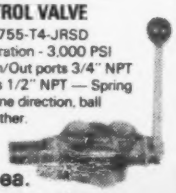

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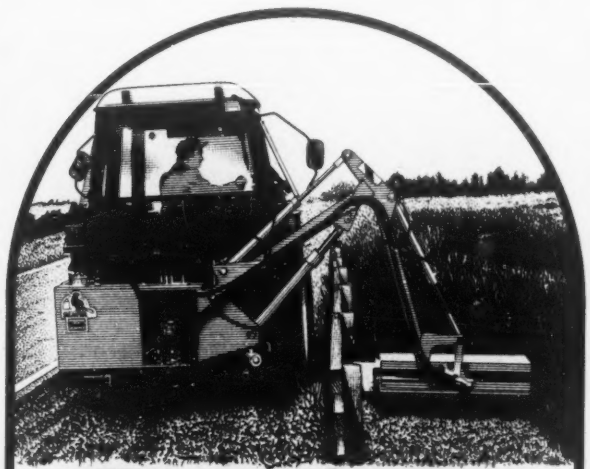

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656 diesel, 1970 (Rough) 3400*
656, 1968 (Fair) 2600*
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756 diesel, ... 3400
766, 1972 (Fair) 5000*
806, 1966 (Fair) 3450*
806, 1967 (Rough) 2650
806 diesel, 1965 (Fair) 4300*
806 diesel, 1964 (Fair) 3850*
806 diesel, 1965 (Good) 4000
806 diesel, 1966 (Good) 3900*
806 diesel, 1968 (Good) 5400
806, 1964 (Fair) 3000
806, 1964 (Fair) 3600*
806, 1965 (Fair) 1500*
806, 1963 (Fair) 1900*
806 LP, 1964 (Rough) 1700*
826, 1970 (Good) 3900*
856 diesel, 1967 (Fair) 5300*
856 diesel, 1967 (Good) 5000*
856 diesel, 1969 (Good) 4500*
966 diesel, 1974 (Good) 7100*
966, 1972 (Good) 5400*
966 diesel, 1973 (Fair) 6200*
966, 1973 (Fair) 5800

1066 diesel, 1972 (Fair) 5750
1066 diesel, 1974 (Fair) 7500*
1066 diesel, 1974 (Good) 6700*
1066 diesel, 1973 (Good) 6600*
1086 diesel, 1978 (Good) 11,000*
1086 diesel, 1977 (Good) 10,750
1206 diesel, 1966 (Fair) 3750
1256 diesel, 1970 (Rough) 3100*
1466 diesel, (Fair) 6000
1466 diesel, 1973 (Good) 6600
1466 diesel, 1973 (Fair) 6300
1486 diesel, 1979 (Good) 10,250*
1486 diesel, 1978 (Rough) 6000*
1566 diesel, 1974 (Fair) 8000*
1586 diesel, ... 7500
1586 diesel, 1975 (Fair) 10,500*
4586 diesel, 1979 (Good) 12,500*

ALLIS-CHALMERS TRACTORS

G, 1950 (Fair) 675
WD, 1950 (Rough) 575*
WD, 1950 (Good) 600
WD, 1947 (Fair) 520
WD-45, ... 525
D-15, 1967 (Good) 2100

D-15, 1967 (Fair) 2725
D-17, ... 1850
D-17, 1966 (Good) 2550
D-17, 1967 (Fair) 2100*
D-19 diesel, 1965 (Fair) 2200*
D-19, 1966 (Fair) 1950
185 diesel, 1976 (Fair) 4900
185 diesel, 1975 (Good) 6000*
190, 1966 (Fair) 2425
190XT diesel, 1968 (Rough) 2950*
190XT diesel, 1970 (Good) 4325
200 diesel, 1971 (Fair) 4200*
7030 diesel, 1973 (Good) 4600*
7040, ... 6000
7060 diesel, 1975 ..... 7100*
7060 diesel, 1979 (Good) 10,500*
7580 diesel, (Good) 9200*

FORD TRACTORS

8N, 1950 (Fair) 1000*
9N, 1944 (Good) 1310
9N, 1947(Rough) 1050
9N, 1945 (Rough) 950
800, 1957 (Rough) 1800*
2000, 1964 (Rough) 2350

4000, 1973 (Good) 5600
4000 diesel, 1966 (Rough) 3400*
5000 diesel, 1970 (Fair) 2800*
5000 diesel, 1972 (Rough) 3750*
5000 diesel, 1965 (Fair) 3875
8000 diesel, 1972 (Fair) 4500*
8600 diesel, 1975 (Fair) 5000
860, 1956 (Good) 2300
860 diesel, 1957 (Rough) 1600
7600 diesel, 1985 (Excellent) 10,900*
7600 diesel, 1978 (Fair) 5250
7600 diesel, 1977 (Fair) 5900*
9700 diesel, 1979 (Fair) 8500*

WHITE TRACTORS

2-85 diesel, 1977 (Good) 7800
2-85 diesel, 1977 (Fair) 4650
2-105 diesel, 1975 (Rough) 5500*
2-135 diesel, 1977 ..... 8000*

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D6206 diesel, (Rough) 4100*
D6806 diesel (Fair) 8100
D10006 diesel (Rough) 1900

NOTES:
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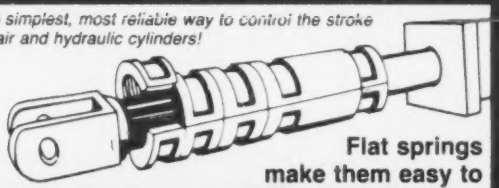

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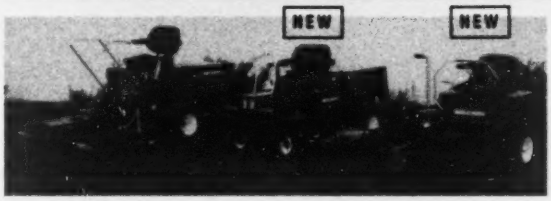

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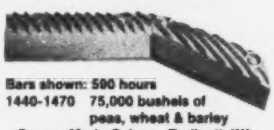

Bars shown: 500 hours
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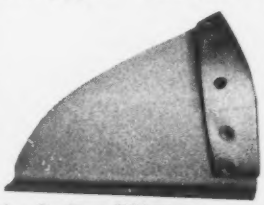

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